DEPI/UEPI/L2TP integration with RPD

This document describes how to configure the DEPI/UEPI/L2TP integration with RPD on the Cisco cBR Series Converged Broadband Router.

Your software release may not support all the features that are documented in this module. For the latest feature information and caveats, see the release notes for your platform and software release. The Feature Information Table at the end of this document provides information about the documented features and lists the releases in which each feature is supported.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to http://tools.cisco.com/ITDIT/CFN/. An account on http://www.cisco.com/ is not required.

Hardware Compatibility Matrix for Cisco Remote PHY Shelf 7200

Note Unless otherwise specified, the hardware components introduced in a given Cisco Remote PHY Shelf 7200 Software Release are supported in all subsequent releases.

Table 1: Hardware Compatibility Matrix for the Cisco Remote PHY Shelf 7200

Cisco CMTS Platform	Cisco Remote PHY Shelf 7200
Cisco cBR-8 Converged Broadband Router with Cisco IOS XE Gibraltar 16.10.1 and Later Releases	**Cisco Remote PHY Shelf 7200 Software 1.1 and Later Releases** Cisco Remote PHY Shelf 7200 • PID—HA-RPHY

Information about DEPI/UEPI/L2TP integration with RPD

DEPI

Downstream External PHY Interface (DEPI) is the downstream interface between the CCAP Core and the RPD. R-DEPI is based on DEPI. More specifically, it is an IP pseudowire between the MAC and PHY in an MHAv2 system that contains both a data path for DOCSIS frames, video packets, and OOB packets, as well as a control path for setting up, maintaining, and tearing down sessions.

UEPI

Upstream External PHY Interface (UEPI) is the upstream interface between the RPD and the CCAP Core. Like DEPI, it is an IP pseudowire between the PHY and MAC in an MHAv2 system that contains both a data path for DOCSIS frames, and a control path for setting up, maintaining, and tearing down sessions.

How to Configure DEPI/UEPI/L2TP integration with RPD

This section describes how to configure DEPI/UEPI/L2TP integration with RPD.

Configuring depi-class/l2tp-class Pair

It's not permitted to change the default l2tp-class configuration (rphy-l2tp-global-class) for R-DEPI by user, because the parameter values are fine tuned to accommodate most common cases.

If user wants to use parameter values other than the default ones, they can use manually defined depi-class/l2tp-class pair. To do so, follow the example below:

```
Router# configure terminal
Router(config)# l2tp-class l2tp_demo
Router(config-l2tp-class)#exit
Router(config)# depi-class depi_demo
Router(config-depi-class)#l2tp-class l2tp_demo
Router(config-depi-class)#exit
Router(config)#cable rpd node
Router(config-rpd)#core-interface Te1/1/7
Router(config-rpd-core)#depi depi_demo /* Be sure to configure when the RPD core is offline*/
Router(config-rpd-core)#end
```

Verifying depi-class/l2tp-class Pair Configuration

To verifying depi-class/l2tp-class pair configuration, use the **show running-config** command as shown in the example below:

```
Router# show running-config | section rpd
alias exec scr show cable rpd
cable rpd node
identifier 0004.9f00.0901
core-interface Te1/1/7
  principal
  rpd-ds 0 downstream-cable 1/0/31 profile 155
```

```
   rpd-us 0 upstream-cable 1/0/63 profile 100
   depi depi_demo
 r-dti 1
 rpd-event profile 0
```

When the RPD core is online, use the **show l2tp tunnel** command as shown in the example below:

```
Router# show l2tp tunnel
LocTunID    RemTunID    Remote Name    State  Remote Address  Sessn L2TP Class/
                                                              Count VPDN Group

2375973187  4191827509  OpenRPD        est    120.100.1.20    86    l2tp_demo
2982856686  2223617345  OpenRPD        est    120.100.1.20    86    l2tp_demo
```

Verifying the RPD Status

To verify the RPD status, use the **show cable rpd** command as shown in the example below:

```
Router# show cable rpd
Load for five secs: 6%/1%; one minute: 5%; five minutes: 5%
No time source, *04:52:03.936 UTC Tue Jan 17 2017


MAC Address    IP Address   I/F      State      Role  HA   Name
0004.9f00.0901 91.0.10.10   Te1/1/0  init(l2tp) Pri   Act  node
```

Display DEPI Ralated Information

To display the Downstream External PHY Interface (DEPI) related information, use the command as shown in the following example:

```
Router#show cable rpd depi

DEPI Tunnel and Session Information Total tunnels 1 sessions 26
LocTunID    RemTunID    Remote Device   State  Remote Address  Sessn L2TP Class
                                                              Count

338514820   671581873   0004.9f00.0901 est    10.10.10.11     26    rphy-l2tp-gl...


LocID      RemID      Pseudowire      State  Last Chg Uniq ID  Type Mode RemSt
0x41040008 0x00000B02 US1/0/0:2(R)    est    00:34:57 21       P    PSP  UP
0x41010000 0x00000600 US1/0/0:0(D)    est    00:34:57 11       P    PSP  UP
0x00002006 0x00000405 DS1/0/0:5       est    00:34:57 6        P    PSP  UP
0x00002004 0x00000403 DS1/0/0:3       est    00:34:57 4        P    PSP  UP
0x4100000C 0x00000D03 US1/0/0:3(M)    est    00:34:57 23       P    PSP  UP
0x00002002 0x00000401 DS1/0/0:1       est    00:34:57 2        P    PSP  UP
0x00002007 0x00000406 DS1/0/0:6       est    00:34:57 7        P    PSP  UP
0x00002008 0x00000407 DS1/0/0:7       est    00:34:57 8        P    PSP  UP
0x4101000C 0x00000603 US1/0/0:3(D)    est    00:34:57 24       P    PSP  UP
0x41000004 0x00000D01 US1/0/0:1(M)    est    00:34:57 15       P    PSP  UP
0x00002001 0x00000400 DS1/0/0:0       est    00:34:57 1        P    PSP  UP
0x41080008 0x00000F02 US1/0/0:2(S)    est    00:34:57 22       P    PSP  UP
0x41010004 0x00000601 US1/0/0:1(D)    est    00:34:57 16       P    PSP  UP
0x41020000 0x00000800 US1/0/0:0(B)    est    00:34:57 12       P    PSP  UP
0x00002009 0x00000408 DS1/0/0:8       est    00:34:57 9        P    PSP  UP
0x41010008 0x00000602 US1/0/0:2(D)    est    00:34:57 20       P    PSP  UP
0x41000008 0x00000D02 US1/0/0:2(M)    est    00:34:57 19       P    PSP  UP
0x4108000C 0x00000F03 US1/0/0:3(S)    est    00:34:57 26       P    PSP  UP
0x00002003 0x00000402 DS1/0/0:2       est    00:34:57 3        P    PSP  UP
0x41080000 0x00000F00 US1/0/0:0(S)    est    00:34:57 14       P    PSP  UP
0x41040004 0x00000B01 US1/0/0:1(R)    est    00:34:57 17       P    PSP  UP
0x41080004 0x00000F01 US1/0/0:1(S)    est    00:34:57 18       P    PSP  UP
0x41000000 0x00000D00 US1/0/0:0(M)    est    00:34:56 10       P    PSP  UP
0x00002005 0x00000404 DS1/0/0:4       est    00:34:56 5        P    PSP  UP
```

```
                   0x4104000C 0x00000B03 US1/0/0:3(R)    est    00:34:56 25         P    PSP   UP
                   0x41040000 0x00000B00 US1/0/0:0(R)    est    00:34:56 13         P    PSP   UP

                   outer#show cable rpd 0004.9f03.0214 te7/1/0 depi tunnel

                   Load for five secs: 7%/2%; one minute: 6%; five minutes: 6%
                   No time source, *12:41:44.228 CST Mon Mar 20 2017

                   LocTunID   RemTunID   Remote Device   State   Remote Address   Sessn  L2TP Class
                                                                                  Count
                   3388764998 1054297851 0004.9f03.0214  est     10.10.10.11      29     rphy-l2tp-gl...
```

Table 2: show cable rpd depi Field Descriptions

Field	Description
LocID	Local session ID.
RemID	Remote session ID.
US1/0/0:2(R)	US means UEPI session, DS means DEPI session. This string means UEPI session on line card slot 1, controller 0, rf-channel 2.
est in State	Established state.
P in Type	On primary line card.

Feature Information for DEPI/UEPI/L2TP integration with RPD

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Note   The following table lists the software release in which a given feature is introduced. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Table 3: Feature Information for DEPI/UEPI/L2TP integration with RPD

Feature Name	Releases	Feature Information
DEPI/UEPI/L2TP integration with RPD	Cisco Remote PHY Shelf 7200 Software 1.1	This feature was introduced on the Cisco Remote PHY Shelf 7200.